1:Haskins K-4,5 (1952-1954)1956 SO11 Bahia Brazilians SO11

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311 From the latitude of the head of the Bay northward, manioc appears as a dominant crop only in the município of Pojuca. In the Central Recôncavo, around the perimeter of the sugar cane area, manioc generally occupied, in 1948, less than 30 per cent of the cropland. In the north, [243] along the borders of the Recôncavo, the share of manioc in the cropland dropped to 10 per cent, and it was replaced by corn and beans as the basis of the subsistence economy.

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433 The yield of manioc in the areas of heavy production was relatively low--10 to 15 tons of roots per hectare--compared to the Central Recôncavo which produced small quantities at 30 tons per hectare (Map 27). These [134] differences in yield are related in part to the difference in soil fertility between the Cretaceous soils of the Central Recôncavo and the sandy loams of the Southwest. In addition, manioc is cultivated alone in the former zone, but follows the soil-taxing tobacco plant on the fields of the Southwest, thus further reducing the yield. The mean yield of manioc in the Recôncavo in 1948 was 14 tons per hectare, which is close to the 13 tons per hectare of Brazil and of the French Cameroons, but much higher than the 7 tons per hectare of Java and Madura.[13]

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249 Manioc is, then, a crop characteristic of most parts of the Recôncavo and the surrounding zone, except in the sugar cane area and [242] the Tabular Uplands. The area of greatest concentration of cultivation and production is the Southwestern Recôncavo where manioc is integrated with tobacco production in a system of land rotation. In addition, as discussed above, manioc has the greatest relative importance of the crops of two zones in which the total area cultivated is small: the southwestern belt of forested lowland and the drier, scrub-forest Crystalline Uplands.

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249 244 433 has made increasingly greater demands upon the land, at least during the decades between 1930 and 1950. In some areas, such as Cruz das Almas, the mean fallow period seems to have been reduced to a minimum of one or two years during the late 1940's. As the result of these developments, the município seems to be faced with the necessity of either a decrease in production or a radical reorganization of the system of cultivation.[21]

249 241 433 However, tobacco is to Cruz das Almas or São Gonçalo what sugar cane is to the Central Recôncavo—a way of life. Agriculture without tobacco is both economically and culturally distressing to the cultivator of the Southwestern Recôncavo. Unlike the sugar cane planter, the agri-
[178] culturalists of the tobacco zone cultivate crops other than the chief commercial product, but as a cash crop they are very reluctant to accept any substitute. Habit is a very great force in the agriculture of all parts of the Recôncavo.

249 433 A result of the traditional and speculative orientation of the people of the tobacco zone is the extreme importance of tobacco—a commercial non-food crop--throughout the zone. In 1948, six municípios of the Recôncavo cultivated more tobacco than any other crop, and in five others it was second in importance. In only two municípios, Itaparica and Salvador, was it lower than fourth in area occupied.

• 243 433 Corn. Traditionally corn (milho) is a crop of the caatinga (scrub forest), and its greatest relative dominance is found just northwest of the Recôncavo in the município of Serrinha. It is, however, grown on a small scale throughout the Recôncavo, and there are at least two areas of intensive production. Corn is overshadowed by other crops, particularly manioc, tobacco, and sugar cane, in all parts of the Recôncavo except the North and the Northwest.

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Like manioc and tobacco, corn is an indigenous crop which was borrowed from the Indians in the early phases of European settlement and which became a basic subsistence crop in Brazil. Its cultivation, like manioc, is a characteristic feature of the agricultural landscape over an extensive coastal belt from the Amazon to Rio Grande do Sul and, unlike manioc, beyond into northern Argentina. In Brazil, corn is cultivated on more land than any other crop, and in most states it is either the second or third crop in value. In the Recôncavo it is the fourth ranking crop in area of cultivation, but only the seventh in the total value of production. The cultivation of corn is very closely associated, areally and functionally, with beans--"succatosh" is a common crop combination in the Northwestern Recôncavo and the adjoining region.[22]

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Corn also resembles manioc in the purpose of cultivation; it is primarily a subsistence crop for local consumption, but there are surplus producing areas with a rudimentary commercial corn economy. In those areas of the Recôncavo where corn is produced in small quantities, it is almost exclusively a minor subsistence crop which is eaten by the cultivator and his family, though a few ears or a small sack of shelled corn may be sold in the market for local consumption. Such semi-subsistence producers are usually small-scale farmers, squatters, or share-croppers. In the Northern and Northwestern Recôncavo, where cultivation of corn is more intensive, there are occasional large-scale corn growers, but the bulk of the area and production in this zone belongs to small operators. Even these small producers usually sell their corn at the market—it is exchanged for the cheaper farinha de mandioca. In the Recôncavo corn is used exclusively as a human food, and there is no corn-livestock complex.

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Only three municípios of the Recôncavo, all very large, had over 500 hectares of corn in 1948 or produced over 500 tons of shelled corn.

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243 311 433 The Recôncavo as a whole had 9,679 hectares of corn, with a production of 10,283 tons. Of this, 87 per cent of the area and 84 per cent of the production was in Santo Estêvão, Feira de Santana, and Irará (Maps 34, 35, and 36). The area and production of the Recôncavo were about the same as for one adjacent município, Serrinha, which had 8,500 hectares and 11,590 tons of corn in 1948.

243 311 Most of the corn grown and produced in the Recôncavo comes from two compact concentrations, one around the cidade of Irará; the other around the cidade of Santo Estêvão. Elsewhere in the Recôncavo it is grown either on very widely scattered plots or as a "garden" crop.[23]

The concentration of corn production is the result of several physical and economic factors. It is cultivated on the dry margins of the Recôncavo, where only a few restricted areas can produce a crop. 243 Though a commercial product of moderate value, its weight- or bulk-price [438] relationship is not highly favorable to long transportation to market-- [489] in contrast to tobacco, which tends to attach itself to even the smallest and most remote semi-subsistence plot, and in contrast to beef, [491] which in Bahia is moved to market on the hoof. The concentration around Santo Estêvão, which is on the main trunk highway to Feira de Santana, is favorable for the transportation of the crop, and the Irará concentration is linked to Feira by a generally passable road. [251] In the more humid parts of the Recôncavo, corn is restricted not only by its poor competitive position vis-à-vis sugar cane or tobacco, but also by its harvest requirements; it must be harvested and stored in the proper season, while manioc may be harvested as it is needed, a great advantage for a subsistence crop.

243 311 433 Corn, although the second most important subsistence crop of the Recôncavo, occupied in 1948 only 12 per cent of the total cropland.

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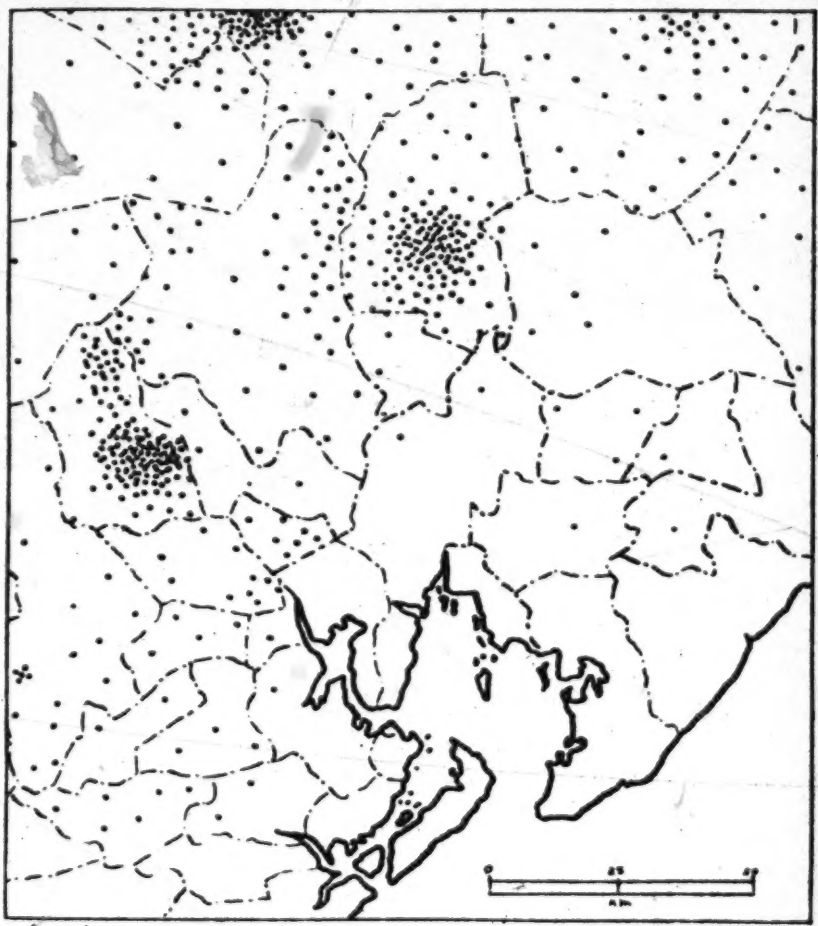

Each dot = 25 hectares

RECONCAVO OF BAHIA

Area in Corn--1960

Source of data: Produção Agrícola; 1960.

MAP 34

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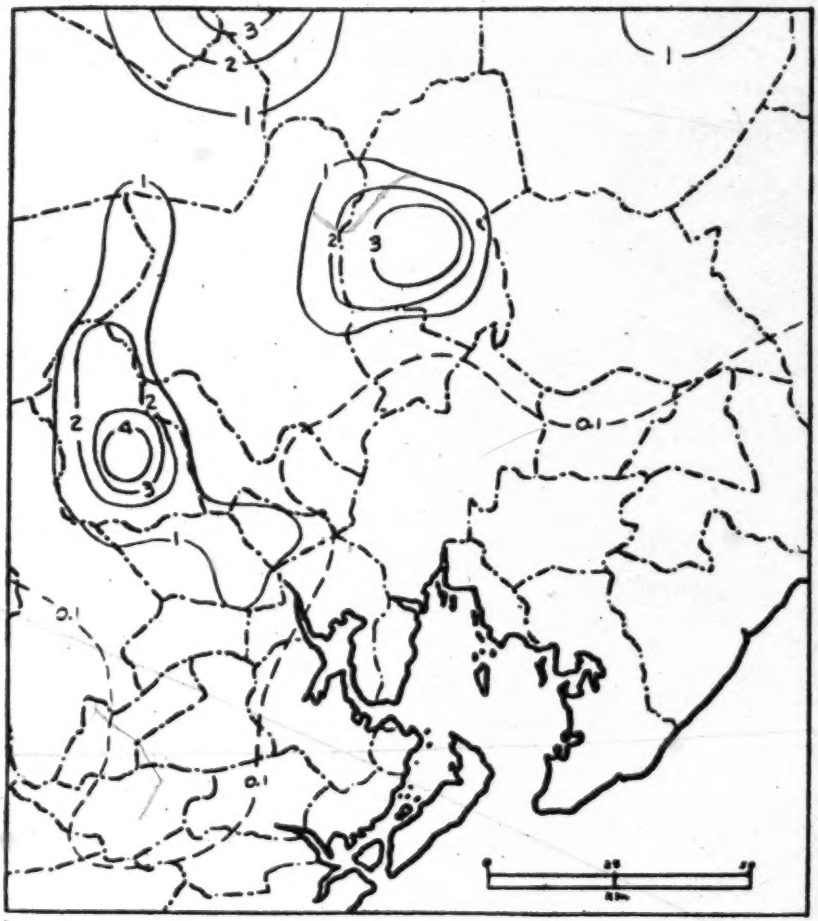

RECÔNCAVO OF BAHIA

Hectares of Corn per Square Kilometer of Total Area—1948

Source of data Produção Agrícola: 1948.

MAP 35

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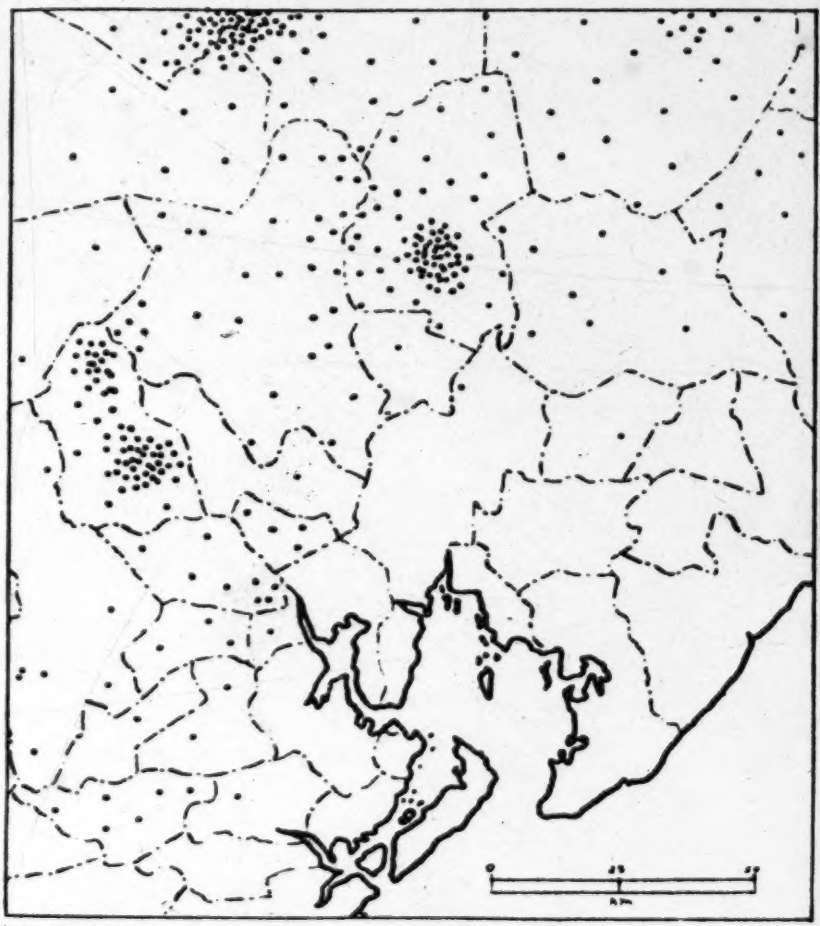

Each dot - 50 metric tons

RECÔNCAVO OF BAHIA

Production of Corn--1948

Source of data: Produção Agrícola: 1948.

MAP 26

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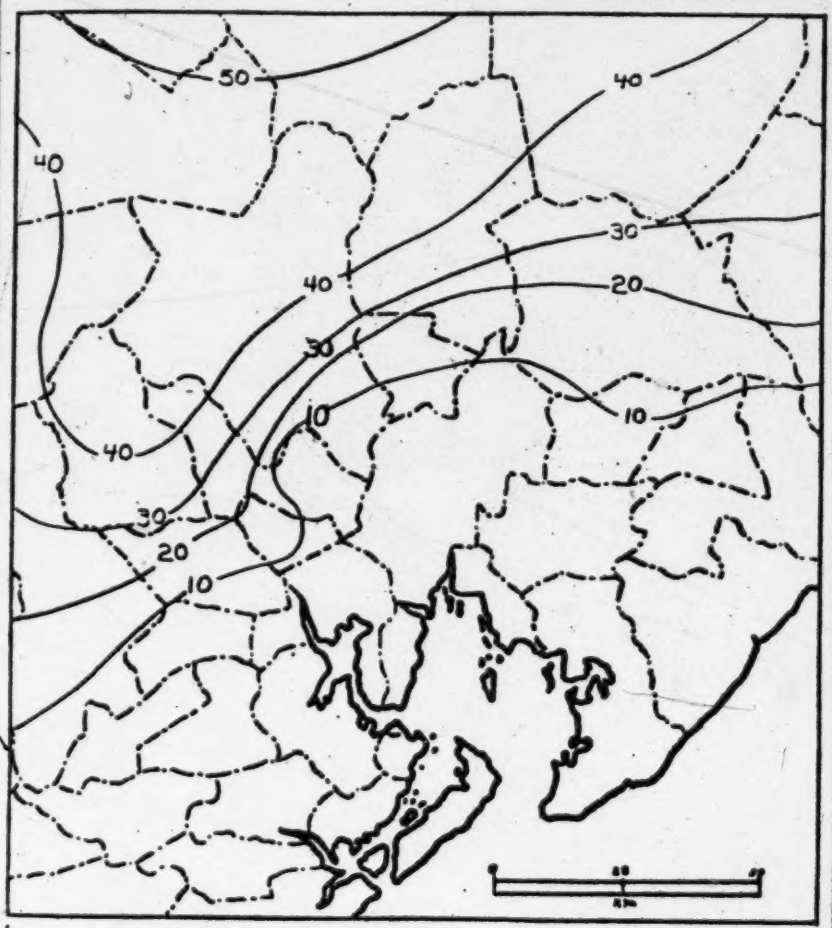

RECÔNCAVO OF BAHIA

Per cent of Cropland in Corn--1948

Source of data: Produção Agrícola: 1948.

MAP 37

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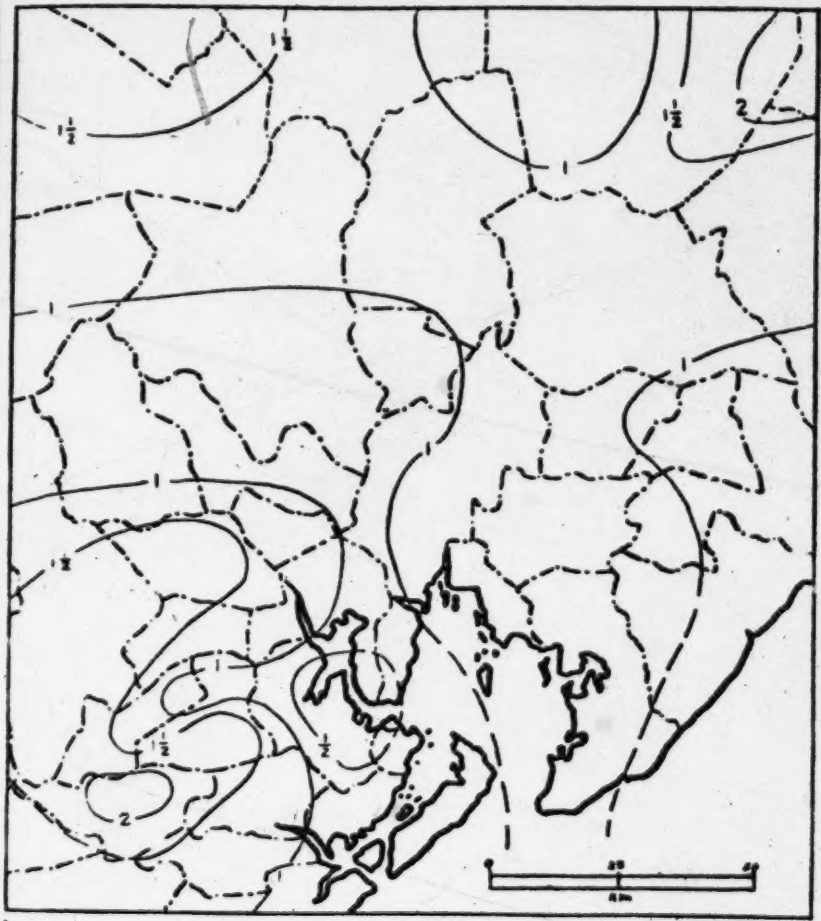

RECÔNCAVO OF BAHIA

Yield of Corn--1948

Tons per Hectare

Source of data: Produção Agrícola: 1948.

MAP 38

1:Haskins K-4,5 (1952-1954)1956 SO11 Bahia Brazilians SO11

243 311 It is primarily a crop of the sertão of northeastern Bahia, but it has intruded upon the northern and western perimeter of the Recôncavo (Map 37). In three municípios--Irará, Feira de Santana, and Santo Estêvão--corn is the most extensively cultivated crop. Conversely, it is rarely seen in the humid lowlands and in the Southwestern Recôncavo. In these areas it is found only in very small, widely scattered plantings.

243 433 The mean yield of corn in the Recôncavo was 1.09 tons per hectare, compared to 1.27 for Brazil, 2.46 for the United States, 1.0 for the Belgian Congo, and .81 for Java and Madura. The accompanying map of corn yields shows a somewhat random pattern within the Recôncavo, since the total area and production were very small and local circumstances of cultivation highly variable (Map 38). However, the area of main production northwest of the Recôncavo had a relatively high yield--over 243 244 1.5 tons per hectare. In this area, corn, with beans, pre-empts the areas with the most productive soils and the greatest precipitation.

244 Beans. Feijão, or the common field bean (Phaseolus vulgaris), like manioc, tobacco, and corn, is an indigenous domesticate which became an important subsistence crop during the colonial period. Like corn, beans are more specifically associated with the dry sertão than 262 252 with the Recôncavo. Most of the beans grown in Bahia are the black variety, feijão preto; the beans are dried and used with charque (dried beef) in a soup which is one of the basic subsistence foods of the Northeast. Beans of this and other similar varieties of the same species are grown throughout Brazil.

244 433 In area and in quantity of production, beans are slightly less important than corn in the Recôncavo, but the value of the bean crop is almost double that of corn. The patterns of distribution of these two crops are almost identical, and the physical and cultural factors

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245 311 The Atlantic coast of Salvador and Itaparica supports a cocoanut monoculture--a monoculture which is most strongly developed north of the Recôncavo in Camassari and Mata de São João. The actual area of the cocoanut monoculture within the Recôncavo is slight, and beyond this monocultural zone, cocoanut cultivation is rarely significant within the region.

The cocoanut monoculture lies between the littoral forest and the beach in Itaparica and between the agreste and the beach in Salvador and in the municípios farther north. Except in the município of [161] [162] [361] Salvador, the rural population of the cocoanut area is not dense. The typical settlement of this zone is the fishing village, sprawled over the beach near the mouth of a small stream. Inland the population is scattered.

243 244 311 A much more important crop system intrudes upon the Northwestern Recôncavo--the corn-bean system. The nuclear area for this system seems to lie in northern Serrinha and in the municípios bordering upon the state of Sergipe. The area in which over 80 per cent of the cropland was in corn and beans in 1948 overlapped the borders of the Recôncavo into western Feira de Santana and Santo Estêvão--a zone of low serras (Map 76). In this zone the area in corn was from one to two times the area in beans (Map 77).

[134] Most of the soils of this region are either crystalline or Tertiary sands, but the pockets of soil which are actually cultivated are almost invariably heavier and more water retentive than are the sandy upland soils of the taboleiros. The corn-bean region generally [162] has a small but nucleated rural population and a few medium-sized cidades, which are the only towns of the very large municípios which are characteristic of the area. However, the part of the corn-bean region which [361] overlaps the Recôncavo has a number of villages and hamlets in the valleys of the serras.

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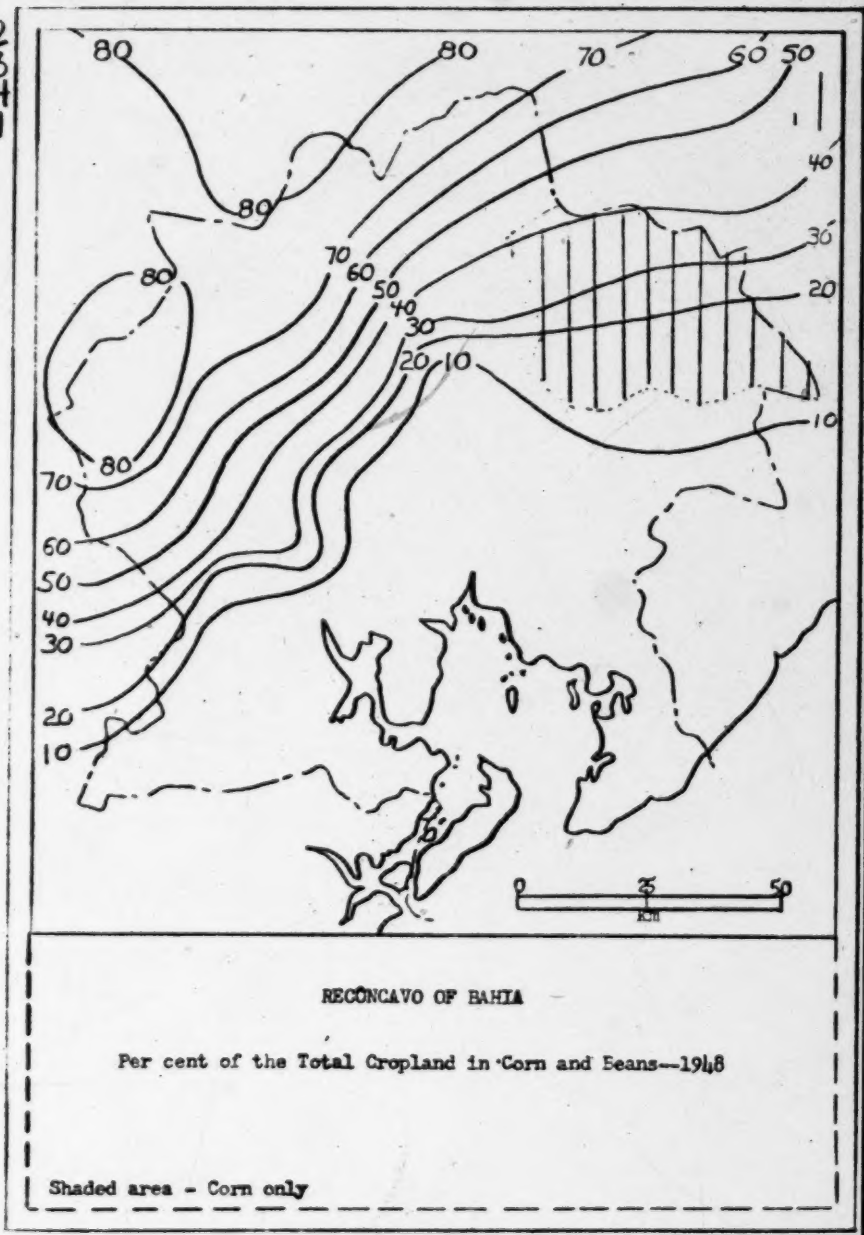

MAP 76

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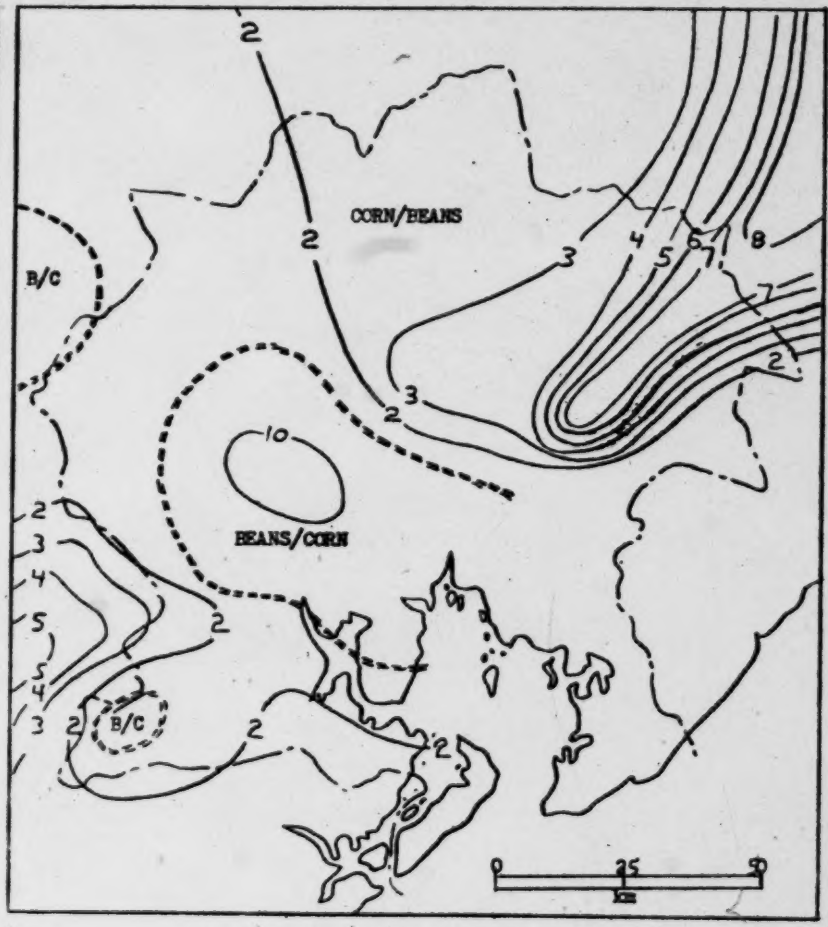

RECONCAVO OF BAHIA

Relationship of the Cultivated Area in Corn and Beans—1948

Corn/Beans - Area in corn exceeds area in beans
Beans/Corn (B/C) - Area in beans exceeds area in corn

MAP 77

1:Haskins K-4,5 (1952-1954)1956 SO11 Bahia Brazilians SO11

249 one year could have intervened between manioc and tobacco. By 1953, the
244 total cropland was obviously far below the 1948 level--probably no more than one-fourth of the land was under cultivation. Even so, the rotation period was extremely short, usually only one or two years. The cultivators are enclosed in a narrowing circle of exhausted soil, increasing cost of manure, and growing population. These are the fundamental problems of the tobacco and manioc region. All of these problems seem to be especially acute in the municipio of Cruz das Almas, but they are serious in every area where tobacco is grown.

243 The Cultivation of Corn and Beans. Corn and beans are usually
244 cultivated in the Recôncavo under a land rotation system, much like the system of tobacco and manioc. The qualification "in the Recôncavo," is necessary because the modifications of the corn-bean system as it overlaps the Recôncavo from the north and west are very significant. In the sertão the areas suited to crop cultivation are more limited, primarily because of the lesser amount of precipitation. Where suitable areas are available, such as at the foot of the low mountains, cultivation tends to be permanent, particularly if the soils are relatively good and if the population is relatively dense for so droughty a zone--as in Serrinha and Inhambupe. This permanent form of agriculture is called pé do monte (foot of the mountain) and is a relatively standardized agricultural system in the sertão, as well as in the crystalline zone near the western edge of the Recôncavo, in Feira de Santana and Santo Estêvão, where corn and beans are often cultivated around the low serras. In the Tertiary zone farther east, where there are no serras, a similar system of permanent cultivation is found in the valleys. Elsewhere within the Recôncavo, corn and beans are generally cultivated under the field and fallow system,

243 244 [134] either separately or in conjunction with tobacco and manioc. They are frequently grown on land thought to be not suitable for tobacco cultivation yet too good for manioc alone, such as the steeper slopes of the crystalline area where the heavier soils do not produce good quality tobacco.

Since the area in corn and beans is small and the amount of slope land large, the capoeira is extensive and frequently quite tall. After the slopes are cleared, the land is very often planted to mixed corn and beans, more rarely to one or the other. The crops are planted [221] in March or April, perhaps in May, and even in June for beans alone. The planting season for these crops is extended both because they are tolerant of changes in season and because as crops secondary to tobacco they have a lesser priority. Some corn is usually planted early enough [527] [262] so that it will ripen in time for São João (mid-summer day) festival for which fresh corn-on-the-cob is the traditional food. This festival is usually the beginning of the corn harvest, but the bean harvest [251] begins a month later. Both crops are harvested by hand and, after drying, are shelled by hand, sacked, and either stored or sold. When the fertility of the soil is higher than normal or when there is labor to spare, the field may be planted to manioc after the corn and bean harvest.

243 244 249 311 As a result of the interpenetration of the corn-bean and the tobacco-manioc systems, in many regions and on many individual properties the two co-exist. Usually the upland fields are in tobacco and manioc, with an occasional plot of corn and/or beans. Usually the slope-land plots are in corn or beans.

249 The Cultivation of Sugar Cane. In distinction to the crops discussed above, sugar cane is grown under a system of permanent

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000 Footnotes - Chapter VI

[124] [129] [114] [1]The discussion of the cultivation of tobacco and manioc is based upon the following sources: (1) private conversations with Mr. G. G. Jay a tobacco buyer and grower of long experience in Bahia and in other regions of South America; (2) Walter Alberto Egler, "Aspectos Gerais da Cultura do Fumo na Região do Recôncavo na Bahia," Boletim Geográfico, Vol. X, No. 111 (November-December, 1952), pp. 679-688; (3) general field observations throughout the zone, except in Coração de Maria and Catu, and, during 1953-1954, detailed observations in São Gonçalo and in Cruz das Almas.

[804] [2]Tarefa means "a task," "a day's work," or "a piece of work," but it is also an antique unit of area which is the folk-unit of area throughout much of Brazil. Its size varies from place to place, but the tarefa baiana equals 0.4356 hectares. In many areas one tarefa is considered to be the usual size of the tobacco planting of one man, but it is obvious from a comparison of the labor force and area in tobacco that in many areas the plantings per person must run much larger. In any case, the individual plots are very likely to be one tarefa each.

[3]In many areas the tree stumps have entirely disappeared as a result of the intensive cultivation, which severely restricts the size of the wild vegetation which can develop during the fallow period.

[114] [243] [4]This interpretation differs, at least in emphasis, from that of Walter Alberto Egler, op. cit., pp. 679-688. He suggests as the characteristic sequence, tobacco, corn and/or beans, and then manioc. Undoubtedly this sequence is important, but the field investigation for the present study revealed that the direct replacement of tobacco with manioc is more characteristic.

[239] [5]However, tobacco does not produce well on these poor soils unless manure is used, and even the yields of manioc are low unless it is planted in a field where there has been a relatively recent application of manure.

[244] [6]The seed for corn, which is edible, has value in itself. The stalk of manioc has no utility except to reproduce the crop. Thus when manioc is planted, the cultivator invests only his labor and the questionable value of the land.

[7]See section by George Wythe in Simon Kuznets, Wilbert E. Moore, and Joseph J. Spengler (eds.), Economic Growth: Brazil, India, Japan, p. 34.

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249
257 the large landholders and agricultural capitalists of Brazil have a
433 strong historical bias toward monocultural systems.

249 As would be expected, the Central Recôncavo accounted for almost
433 90 per cent of the total value of sugar cane in the region. Sugar pro-
471 duction in this area is dominated by the big usinas, and most of the cane is produced on very large properties, as has been seen.

243 Although corn and beans primarily are subsistence crops, they
244 have, like manioc, some commercial importance (Map 125). The corn and bean
433 areas within the Recôncavo do not produce outstanding surpluses, although
438 these two crops are important commercial products in nearby Serrinha and Conceição do Coite. Most of the corn and beans of the Recôncavo are exchanged for farinha de mandioca, which provides the cultivator with a cheaper food.

244 The remaining crops of the region are of minor commercial impor-
245 tance, or are more valuable commercial crops of highly localized pro-
433 duction. Bananas, peanuts, and sweet potatoes are minor commercial
438 crops of diffuse production, since most of their cultivation is for subsistence purposes. Oranges, cocomut, coffee, and pineapple are important but secondary commercial products whose production is concentrated in a few restricted areas (see, for example, Map 126 of coconut production).

249 The importance of the principal commercial crops--tobacco, sugar
344 cane, coffee, cocomut, oranges, pineapple, a few minor crops, and
345 commercial manioc--varies widely from município to município (Map 127).
433 However, two areas--the Central Recôncavo and the Southwestern Recôncavo--
438 had highly commercial economies in which over 90 per cent of the total value of production was in commercial crops. In the tobacco-manioc area north of the Rio Paraguaçu, only one-half to three-quarters of
000 the total value of production was in commercial crops. Except in the

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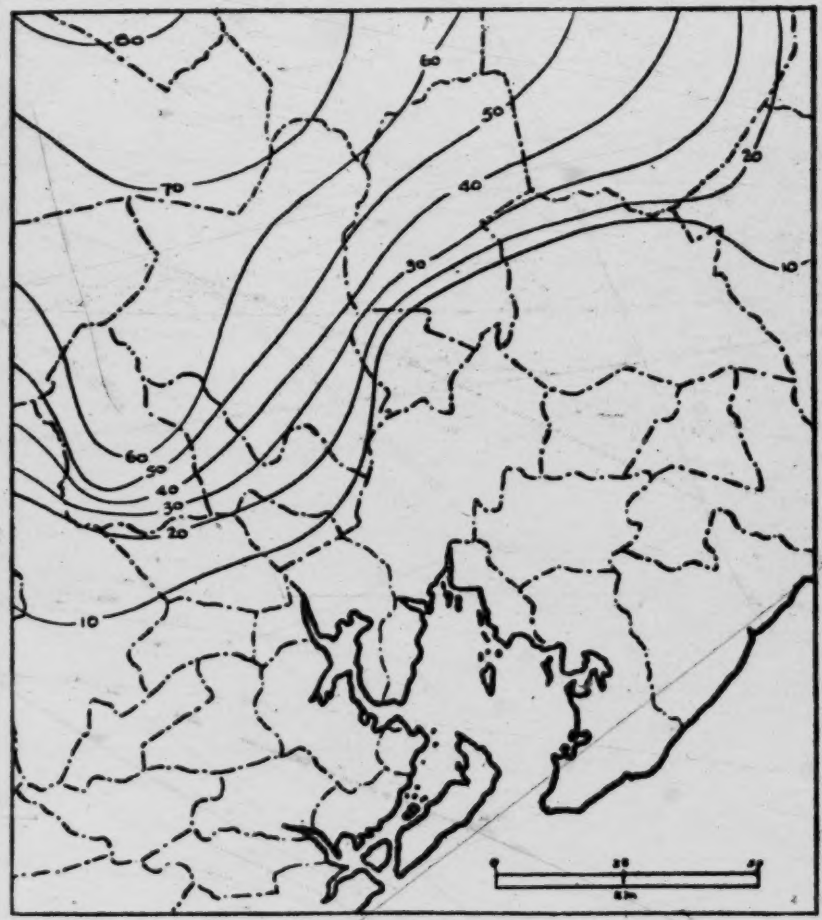

RECÔNCAVO OF BAHIA

Per cent of the Total Value of Crop Production

Contributed by Corn and Beans--1948

MAP 125

249 the crop region would decline and that manure, essential to the production of tobacco, would become even more expensive than at present. Any increase in the intensity of tobacco production would probably decrease the production of manioc, so that both the sub-region and the Recôncavo would have an even greater food deficit than at present.

241 The system of land rotation is clearly one of the basic problems of the Recôncavo. As the population of the region grows, the problem of the system of cultivation will almost certainly become progressively more acute. One solution which is being proposed by the rural missions of the Ministry of Education is the use of composting as a [178] substitute for manure. As yet the results of the mission program is not clear, but it is obvious that the resistance and the apathy toward new agricultural ideas in the region are very great. As far as could be ascertained, mixed agriculture has not been suggested as a solution to the problem. Indeed, in view of the lack of additional land for the production of forage crops or of grasses, it is difficult to see how such a proposal could be implemented.

242 It is apparent even to the casual observer that there are some alternative crops which might be produced in the Recôncavo. From time to time the agricultural experiment stations and a few enterprising [243] land owners point the way. One example is the production of corn as a commercial crop in the northern part of the município of Muritiba. At [312] the price of corn prevailing in 1953, it was believed possible to produce the crop profitably using irrigation water pumped from the Rio Paraguaçu, and a single landowner was making the attempt. Obviously there are no large areas in the narrow valley which can be irrigated, nor is the water supply great. It is, however, suggestive that it is possible to produce a staple food crop at as great a profit as tobacco. In the

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242 [245] In the sugar cane zone there has been one small scale experiment with white cacao, which can be sold at a higher price than the ordinary variety. It is believed that this crop would do well on the soils now under sugar cane and perhaps on some of the other soils of the lowlands. Since cacao in the Recôncavo presumably would be free of the diseases which cause so much difficulty in the main area of cultivation along the southern coast of the state, it might be possible to stabilize Bahia's cacao production and at the same time to improve agricultural conditions in the Recôncavo. Another alternative use for the Cretaceous soils of [243] the sugar cane region might be for the cultivation of rice, which is presently grown on a small scale in Santo Amaro. In view of the perennial shortages and high cost of food in both the Recôncavo and in Brazil, such a generally acceptable food should find a ready market. On the other hand, the development of cacao or rice cultivation in this area would mean the abandonment of the heavy investment in sugar mills and plantations.

241 178 Although the evaluation of specific suggestions is the province of the agricultural specialist, one fact is clearly shown in the results of the present research--any proposal for the future development of the Recôncavo will have to conquer the inherent traditional orientation of agriculture in the region.

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244 433 127 128 [435] gave 0.54 tons per square kilometer total area, which corresponded to 0.59 tons per square kilometer for Coração de Maria.

In São Sebastião, the low unit value of manioc--Cr.$80 per ton--indicated possible error. The reasonable intensity of production suggested that the total value data were in error. The mean unit value of the four surrounding municípios--Cr.$240 per ton--was accepted for São Sebastião and was used to calculate a revised total value of Cr.$168,000.

Minor errors were apparent in the data for certain other municípios. For example, the yields of Maragogipe, Cachoeira, and Salvador were extremely low. Adjustments could have been made, but the relatively small manioc area and production in these municípios indicated that the resulting alterations would not markedly change the general area or production pattern. Maps 130, 131, 132, 133 and 134 show the patterns of manioc cultivation, production, and yield as taken from unmodified official data in Produção Agrícola: 1948. The corresponding maps based upon modified data (Maps 22, 23, 24, 25, and 27) are presented in Chapter V.

243 433 127 128 Corn. Calculations from the original data gave Maragogipe a yield of .40 tons of corn per hectare, less than one-half the yield of neighboring municípios. This was excessively low, and it seemed preferable to use the figure of 1.24 tons per hectare, the mean of adjacent São Filipe and Cachoeira. These municípios, though not similar to the whole of Maragogipe, resemble very much the adjoining areas where cultivation is concentrated. The production figure for Maragogipe was accepted as reasonable, since when combined with value it produced a credible unit value. Thus the area was reduced from 15 hectares to 5 hectares, raising the yield to a more acceptable level. However, these changes do not modify the gross pattern extensively and therefore the maps in Chapter V were based upon the original data.

[TEXT CONTINUED ON PAGE 415]

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Area data for corn should be used with reservation, especially for the northern and western municípios. In the drier areas it is the custom to plant corn and beans together in the same field, generally in the same row, and the area could have been counted, in its entirety, twice (once for each crop). Yield calculations for corn and beans suggest that this has not been done; however, the vagaries of climate and cultivation in these dry zones produce such variations in mean yield from year to year and place to place that it was impossible to secure a clearcut verification. Conversations with personnel of the compiling agency failed to clarify the situation.

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Bananas. The maps of banana area, based upon the official data, reveal a definite gap in Cruz das Almas and northern São Filipe (Map 135). However, this area lies in the middle of a belt of relatively dense production. Field experience in this immediate area indicated that bananas were at least as important in these two areas as in adjacent Conceição do Almeida. The official data show only 7 hectares and 3,000 bunches of bananas in Santo Antônio, but the large numbers of banana plants which were observed would tend to discredit these figures. Since in the Recôncavo the area planted in bananas does not usually have a consistent relationship to the number of plants and thus to production, yields are not a trustworthy guide to the estimation of production. On the map of banana production in the text (Map 52) the official data have been modified to allow Cruz das Almas 190,000 bunches in place of the 29,000 in the official data; São Filipe, 70,000 in place of the official 20,000; and Santo Antônio, 86,000 in place of the official 3,000. These changes were made by artitrarily increasing the production data to give these areas the same density of production as similar areas in adjacent municípios. Since, as has

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[TEXT CONTINUED ON PAGE 417]